UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/987,932	11/16/2001	Chalmer G. Kirkbride	3495-7000US3	7958

7590 02/11/2008

MORGAN & FINNEGAN, L.L.P.
345 Park Avenue
New York, NY 10154

EXAMINER	
LEUNG, JENNIFER A	

ART UNIT	PAPER NUMBER
1797	

MAIL DATE	DELIVERY MODE
02/11/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	09/987,932	KIRKBRIDE ET AL.	
	Examiner	Art Unit	
	JENNIFER A. LEUNG	1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 November 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *23-34,39-49,52 and 53* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *23-34,39-49,52 and 53* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. Applicant's amendment filed on November 20, 2007 has been carefully considered. Claims 1-22, 35-38, 50, 51 and 54 are cancelled. Claims 23-34, 39-49, 52 and 53 are under consideration.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 23-34, 39-49, 52 and 53 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Regarding claims 23 and 34, it is unclear as to where the newly added temperature range within the limitation of, "said reactor system having means for feeding said fluidizing medium at a temperature in a range of from 800 °F to 1500 °F," is supported in the original disclosure. It is noted that the specification, for example, only provides support for the following temperature point values for the fluidizing medium, i.e., for the hydrogen inlet temperature to the reactor:

- 1500 °F (page 30, line 29) or about 1500 °F (page 25, line 2)
- 1200.00 °F (page 17, line 35; page 20, line 30) or about 1200 °F (page 13, lines 11, 12)

Furthermore, it is unclear as to where the newly added temperature range within the limitation

of, "a fluidized bed temperature in a range of from 800 °F to 1200 °F," is supported in the original disclosure. It is noted that the specification, for example, only provides support for the following temperature point values or temperature ranges for the fluidized bed, i.e., for the reaction temperature:

- about 900 °F to about 1000 °F (page 25, lines 6-7)
- between 800 °F and 900 °F, preferably closer to 800 °F (page 8, line 22)
- 800.00 °F (page 17, line 17)
- 950 °F (page 30, line 22)

Furthermore, it is unclear as to where the concentration range within the limitation of, "off gas comprising 0.30 vol % or less CO," is supported in the original disclosure. It is noted that the specification, for example, only provides support for the following CO concentration point values:

- CO at 0.30 % (specification, page 16, line 37. There is no indication as to whether the concentration is given as vol %, or as some other basis. Other portions of the specification appear to suggest the use of a wt % basis)
- CO at 0.05 wt % (specification, page 20, line 50)

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 23-27, 29, 30, 34, 39-43, 45 and 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gregoli (US 4,075,081) in view of Kalbach (US 2,639,982).

Regarding claims 23 and 34, Gregoli (see figure; column 5, lines 3-55) discloses an apparatus comprising:

a fluidized bed reactor (i.e., hydroretorter **9**; column 4, lines 1-3) having a fluidized bed, free of a contained catalyst bed (see column 4, line 45 to column 5, line 2);

said reactor **9** comprising a feed inlet connected to a source of fluidizable feed (i.e., in communication with line **8**), a fluidizing medium inlet connected to a source of fluidizing medium (i.e., in communication with line **11**), and an outlet for off gas (i.e., in communication with line **12**);

means (i.e., lines **2**,**8**, including a pumping means, not labeled) for continuously feeding said feed to the reactor **9**;

means (i.e., line **11**, including a compressor **20**) for continuously feeding the fluidizing medium;

means (i.e., a heater **10**) for feeding the fluidizing medium at a temperature in the range of from 800 °F to 1500 °F (i.e., the heater **10** is structurally capable of supplying the fluidizing

medium at an elevated temperature, e.g., at about 800 °F; see EXAMPLE); and an outlet for spent solids (i.e., in communication with line **12**, to line **14**).

Please note that expressions relating the apparatus to contents thereof during an intended operation are of no significance in determining patentability of the apparatus claim, *Ex parte Thibault*, 164 USPQ 666, 667 (Bd. App. 1969), and the inclusion of a material or article worked upon by a structure being claimed does not impart patentability to the claims, *In re Young*, 75 F.2d 966, 25 USPQ 69 (CCPA 1935); *In re Otto*, 312 F.2d 937, 136 USPQ 458, 459 (CCPA 1963). Therefore, the recitations with respect to the particular feed materials being worked upon by the apparatus (i.e., a tar sand feed comprising a bitumen, an oil shale feed comprising a kerogen, hydrogen at a concentration of 95 vol. % or greater) add no further patentable weight to the apparatus claims. Additionally, the recitations with respect to the particular products formed by the apparatus (i.e., an off gas comprising 0.30 vol. % or less CO) add no further patentable weight to the apparatus claims. Furthermore, the recitations of particular process conditions (i.e., a fluidizing medium temperature in a range of from 800 °F to 1500 °F, a fluidized bed temperature in the range of from 800 °F to 1200 °F, an operating temperature in the range of 50 °F to 1500 °F) add no further patentable weight to the apparatus claims.

In any event, with respect to claim 34, Gregoli discloses that the feed materials may include a fluidizable feed comprising an oil shale feed with kerogen (see column 2, line 66 to column 3, line 16) and a fluidizing medium comprising hydrogen gas (i.e., supplied via make up line **19**, or recycled). Furthermore, Gregoli discloses that the fluidizing medium may be fed to the reactor **9** at a temperature of about 800 °F (see EXAMPLE), and the bed temperature may be from about 600 °F to 900 °F (see column 4, lines 3-9; also, claims 1 and 2).

With respect to the newly added limitation of, "said tar sand feed having a particle size greater than the particle size of sand," Gregoli does not specifically state that the crushing and grinding apparatus **1** is configured to produce such sizing of the feed material. However, the specific feed particle sizing is not considered to confer patentability to the claim since the precise particle size would have been considered a result effective variable by one having ordinary skill in the art, as evidenced by Kalbach (see column 2, lines 49-55). For instance, Kalbach teaches that the particle size may vary considerably, e.g., from a powder to particles of ¼" in average diameter, and smaller particles will increase the rate of hydrogenation. In addition, it is noted that the present specification sets forth on page 23, lines 26-29, that the claimed sizing, is at best, a preferred limitation. It is also noted that the present specification sets forth on page 8, lines 1-6, that the feed particles may even be the *same* size as sand. As such, without more, the claimed ratio cannot be considered "critical". Accordingly, one having ordinary skill in the art would have routinely optimized the particle size of the feed material produced by the crushing and grinding apparatus **1** in the system of Gregoli in order to obtain the desired rate of hydrogenation within the fluidized bed reactor, *In re Boesch*, 617 F.2d. 272, 205 USPQ 215 (CCPA 1980), and where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

With respect to the newly added limitation that, "said off gas being free of a liquid phase at said off gas outlet," the apparatus of Gregoli meets the claim, since expressions relating the apparatus to contents thereof during an intended operation are of no significance in determining patentability of the apparatus claim, *Ex parte Thibault*, 164 USPQ 666, 667 (Bd. App. 1969), and the inclusion of a material or article worked upon by a structure being claimed does not impart

patentability to the claims, *In re Young*, 75 F.2d 966, 25 USPQ 69 (CCPA 1935); *In re Otto*, 312 F.2d 937, 136 USPQ 458, 459 (CCPA 1963). It is further noted that although Gregoli discloses that the fluid exiting the reactor comprises a mixture of gases and liquids, in actuality, the phase that exits the reactor is gaseous, given that the liquid (i.e., the oil) would be vaporized within the fluidized bed reactor under the stated process conditions, as evidenced by Kalbach (see column 4, lines 6-68, discussing the vaporization of oil in the hydrogenation zone). As best understood, it appears that Applicant's off gas stream would similarly contain a liquid, in the form of vaporized oil obtained from processing the tar sand or oil shale.

Regarding claims 24 and 40, a hydrogen recycling system (i.e., with a "hydrogen recycle" line and separators **16**,**18**; see Figure) is positioned downstream from the off gas outlet.

Regarding claims 25, 26, 41 and 42, a separator (i.e., comprising cyclone separators **13**) removes entrained solids from the reactor product gas.

Regarding claims 27 and 43, Gregoli discloses that the feed inlet (i.e., in communication with line **8**) and the fluidizing medium inlet (i.e., in communication with line **11**) are positioned for co-current flow of the feed and the fluidizing medium through the fluidized bed (see figure; also, column 5, lines 19-20).

Regarding claims 29 and 45, a heat exchanger **17** recovers heat from a gas having a component which has exited the reactor **9** (see figure).

Regarding claims 30 and 46, a gas-liquid separator (i.e., separator **16**; see figure; also, column 5, lines 28-32) separates a condensable hydrocarbon having exited the reactor **9**.

Regarding claim 39, Gregoli further discloses a feed introducing system (i.e., comprising crushing and grinding unit **1** and feed line **2**; see figure). The recitation with respect to the feed

being maintained at "a temperature of about 100 °F or lower" is considered a process limitation that adds no further patentable weight to the apparatus claim.

4. Claims 28, 32, 33, 44, 48 and 49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gregoli (US 4,075,081) in view of Kalbach (US 2,639,982), and further in view of Schlinger et al. (US 3,224,954).

Gregoli (see figure and column 5, lines 28-49) discloses that the hydrogen recycling system comprises a separating device (i.e., separator **16**, **18**) for removing a portion of hydrocarbon from the reactor off gas, to produce a recycle hydrogen gas stream; a make-up hydrogen feed stream (i.e., via line **19**); a mixing device (i.e., the junction of line **19** and the hydrogen recycle line; see figure) for admixing the recycle hydrogen and the make-up hydrogen feed to form a hydrogen mixture; a heater **10** for heating at the mixture of recycle hydrogen and make-up hydrogen; and a compressor **20** for pressuring the recycle hydrogen stream.

The hydrogen recycling system in Gregoli is the same as the instantly claimed hydrogen recycling system, except that the compressor **20** is positioned such that it only compresses the recycle hydrogen stream, and not the stream comprising at least the make-up hydrogen, or both the recycle hydrogen and the make-up hydrogen.

Schlinger (see FIG. 1) teaches a hydrogen recycling system in which a compressor **10** is used for compressing both a make-up hydrogen (i.e., supplied via line **11**) and a recycle hydrogen stream (i.e., in line **9**) obtained from a separating device **8**, where the compressed stream containing the recycle and the make-up hydrogen is fed to a heater **2**.

It would have been an obvious design choice for one of ordinary skill in the art at the time the invention was made to reposition the compressor **20** in the hydrogen recycling system of

Gregoli, such that the compressor **20** compressed at least the make-up hydrogen, or both the recycle hydrogen and the make-up hydrogen, on the basis of suitability for the intended use and absent a showing of unexpected results thereof, because the shifting of the location of parts was held to have been obvious, *In re Japikse,* 181 F.2d 1019, 1023, 86 USPQ 70, 73 (CCPA 1950); and the claimed positioning of the compressor in the hydrogen recycling system would have been considered conventional in the art, as evidenced Schlinger. In addition, the two compressor positions within the hydrogen recycling system would have been recognized as equivalents for performing the same function of feeding hydrogen gas to the reactor under a pressurized state.

5. Claims 31 and 47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gregoli (US 4,075,081) in view of Kalbach (US 2,639,982), and further in view of Fleck (US 4,125,597).

Gregoli discloses that, "[t]he overhead gas stream from **18**, containing H_2S and ammonia, can be sent to a purification zone, not shown…" (column 5, lines 34-36). Gregoli, however, is silent as to the purification zone comprising a scrubbing system.

Fleck (see Figure; column 6, lines 3-30) teaches a scrubbing system **10** comprising scrubbers **34**, **36** for purifying a gas stream **12** containing H_2S as a pollutant.
It would have been obvious for one of ordinary skill in the art at the time the invention was made to provide a scrubbing system in the purification zone in the apparatus of Gregoli, on the basis of suitability for the intended use thereof, because the scrubbing system would allow for the hydrogen sulfide, which is an atmospheric pollution, to be removed from the system.

6. Claims 52 and 53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gregoli (US 4,075,081) in view of Kalbach (US 2,639,982), and further in view of Tassoney et al. (US 3,715,301).

Gregoli is silent as to whether the feed inlet and the fluidizing medium inlet may be positioned for countercurrent flow of the feed and the fluidizing medium through the fluidized bed in the reactor **9**.

Tassoney et al. teaches a fluidized bed reactor **17** wherein the feed inlet (i.e., in communication with line **16**) and the fluidizing medium inlet (i.e., in communication with line **18**) are positioned for countercurrent flow of the feed and the fluidizing medium through the fluidized bed (see figure; column 4, line 74 to column 5, line 38).

It would have been obvious for one of ordinary skill in the art at the time the invention was made to configure the feed inlet and the fluidizing medium inlet for countercurrent flow of the feed and the fluidizing medium through the fluidized bed in the apparatus of Gregoli, on the basis of suitability for the intended use thereof, because the countercurrent flow configuration for retorting a feed material, e.g. oil shale, with hydrogen is conventional in the art, as evidenced by Tassoney et al. Furthermore, the substitution of a countercurrent flow configuration for a cocurrent flow configuration of the feed and the fluidizing medium through the fluidized bed would have been considered obvious to one of ordinary skill in the art, since both configurations would have been recognized as equivalents for performing the same function of hydro-retorting in substantially the same way, to produce substantially the same results.

Response to Arguments

7. Applicant's arguments filed on November 20, 2007 have been fully considered but they are not persuasive.

Comments regarding the rejection of claims 23-34, 39-49, 52 and 53 are rejected under 35 U.S.C. 112, first paragraph

Applicant (beginning at the second to last paragraph on page 10) argues,

> "The claimed system operates over a wide variety of conditions. Applicants assert it is typical for equipment in the chemical industry to experience operation over a full range of conditions often ranging from ambient to a maximum operating/design temperature.
>
> As cited in the Office Action, the claimed system can be designed to operate at temperatures consistent with its disclosed hydrogen inlet temperature of 1500°F, or about 1500°F. *(See, e.g.,* 24/25-25/2, 30/table, 31/table, original claim 9). The system also can operate at a lower recited operating temperature 800°F. *(See e.g.,* 8/19-23, 9/23-10/12, 17/table, 18/table). The claimed system can be operated at temperatures in between the lower recited temperature of 800°F and the recited temperature of 1500°F. As set forth in the Office Action, the temperature of 1200°F, or about 1200°F, is supported *e.g.,* 17/35, 20/30, 13/11-12. Accordingly, the system can be operated from a lower temperature such as the recited 800°F or at higher temperatures through a range which can include for example 1500°F, or at a temperature in between such as 1200°F."

Applicant's argument is not persuasive.

Although equipment may generally operate under a wide range of process conditions, Applicant's specification only provides support for certain process conditions.

Regarding the recitation of a hydrogen inlet temperature "in a range of from 800 °F to 1500 °F", the Examiner agrees that a temperature of 1500 °F and about 1500 °F, as well as a temperature of 1200 °F and about 1200 °F, is supported in the specification (see rejection). However, no other temperatures or any ranges of temperatures are specified for the hydrogen inlet temperature. In addition, Applicant points to various portions of the specification that disclose temperatures of 800 °F (e.g., at 8/19-23, 9/23-10/12, 17/table, 18/table), in order to support a hydrogen inlet temperature of 800 °F. These cited portions, however, relate to the

reaction temperature within the reactor, not the hydrogen inlet temperature. In fact, the citation at 17/table contradicts Applicant's assertion, given that the table states that the hydrogen inlet temperature is set to 1200 °F, in order to achieve a Reaction Temperature of 800 °F.

Regarding the recitation of a fluidized bed temperature "in a range of from 800 °F to 1200 °F," the Examiner agrees that a temperature of 800 °F is supported in the specification (see rejection). However, a temperature of 1200 °F , and a range of temperatures all the way up to 1200 °F is not found in the specification. In addition, Applicant points to various portions of the specification that disclose a temperature of 1200 °F (e.g., at 17/35, 20/30, 13/11-12.). These cited portions, however, are concerned with the hydrogen inlet temperature, and not the fluidized bed temperature. In fact, the citation at 17/35 contradicts Applicant's assertion, given that the table specifically states that the fluidized bed temperature is at 800 °F, and not 1200 °F (see page 17, line 17).

Regarding the recitation of "off gas comprising 0.30 vol % or less CO," the Examiner is unaware of where any range is specified within the specification. As indicated in the rejection, only the specific values of 0.30 % (with no basis specified) and 0.05 wt% are presented in the specification.

Comments regarding the rejection of the claims under 35 U.S.C. 103(a) as being unpatentable over Gregoli in view of Kalbach (and additional secondary references)

Applicant (at page 12, first paragraph) argues,

> "… Gregoli '081 is a different process than claimed by Applicants. Firstly, Applicants respectfully assert that Gregoli '081 does not disclose the processing of tar sand and claimed by Applicants. Separately, Gregoli '081 employs a slurry feed with particle sizes of 10-300 microns. Applicants amended claims 23 and 34 recite "a particle size greater

> than the particle size of sand". Further, Applicants amended claims 23 and 34 recite "off gas being free of a liquid phase". Applicants assert Gregoli '081 has an outlet stream which has a liquid phase."

The Examiner respectfully disagrees.

Firstly, the instant claims are apparatus claims. Apparatus claims cover what a device is, not what a device does. Therefore, the instant recitations with respect to the processes occurring within the apparatus, i.e., relating to a particular type of feed material, a specific reaction temperature, a final product composition, etc., add no further patentable weight to the claims. Expressions relating the apparatus to contents thereof during an intended operation are of no significance in determining patentability of the apparatus claim, *Ex parte Thibault*, 164 USPQ 666, 667 (Bd. App. 1969), and the inclusion of a material or article worked upon by a structure being claimed does not impart patentability to the claims, *In re Young*, 75 F.2d 966, 25 USPQ 69 (CCPA 1935); *In re Otto*, 312 F.2d 937, 136 USPQ 458, 459 (CCPA 1963). See MPEP 2115. Also, recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim.

Secondly, regarding the newly added recitation of "a particle size greater than the particle size of sand," see the new grounds of rejection set forth above.

Thirdly, the recitation of "off gas being free of a liquid phase" adds no further patentable weight to the claims, since the off gas is not considered an element of the apparatus, and whether liquid would be present in the off gas depends on the intended use of the apparatus. Also, it is noted that although Gregoli discloses that the fluid exiting the reactor comprises a mixture of

gases and liquids, in actuality, the phase that exits the reactor is gaseous, given that the liquid (i.e., the oil) would be vaporized under the stated process conditions, as evidenced by Kalbach (see column 4, lines 6-68, discussing the vaporization of oil in the hydrogenation zone). As best understood, it appears that Applicant's off gas stream would similarly contain a liquid, in the form of vaporized oil obtained from processing the tar sand or oil shale.

Applicant's Request for Interview

If Applicant wishes to discuss the claims during an interview, Applicant should contact the Examiner by telephone to schedule a time for the interview.

Regarding the "CO concentrations" (see remarks at page 11, second paragraph, of the response), it appears that Applicant is arguing that patentable weight should be given to said limitation. However, as specified in the rejection, the CO concentration within the off gas stream is considered a process limitation that adds not further patentable weight to the apparatus claims. Expressions relating the apparatus to contents thereof during an intended operation are of no significance in determining patentability of the apparatus claim, *Ex parte Thibault*, 164 USPQ 666, 667 (Bd. App. 1969), and the inclusion of a material or article worked upon by a structure being claimed does not impart patentability to the claims, *In re Young*, 75 F.2d 966, 25 USPQ 69 (CCPA 1935); *In re Otto*, 312 F.2d 937, 136 USPQ 458, 459 (CCPA 1963). See MPEP 2115. A recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim.

Regarding the "Preamble Recitation" (see remarks at page 11, third paragraph, of the response), it appears that Applicant is arguing that in a "system" claim, patentable weight should be given to the apparatus as well as the contents being worked upon by the apparatus. However, as stated above, expressions relating the apparatus to contents thereof during an intended operation are of no significance in determining patentability of the apparatus claim, and the inclusion of a material or article worked upon by a structure being claimed does not impart patentability to the claims. Under 35 U.S.C. 101, claims may only be directed toward a single statutory class, i.e., a machine or a process, but not both. In the instant case, the "system" claims are drawn to a machine, not a process.

Conclusion

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

* * *

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JENNIFER A. LEUNG whose telephone number is (571)272-1449. The examiner can normally be reached on 9:30 am - 5:30 pm Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn A. Caldarola can be reached on (571) 272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jennifer A. Leung/
Primary Examiner, Art Unit 1797